



## External seminars – Name (Institute)

**Illustration (picture or anything you like) of your work/talk:**

### Laboratoire de l'invité/Laboratory of the speaker

Columbia University, Department of Biological Sciences

### Invité par/Invited by

Abderrahman Khila

### Date

15 Septembre 2025

### Titre de la présentation/Title of the presentation

The evolution of toxin-resistant  $\text{Na}^+, \text{K}^+$ -ATPases in fireflies



### Résumé/Short abstract

Toxic cardiotonic steroids (CTSs) act as a defense mechanism in many firefly species (Lampyridae) by inhibiting a crucial enzyme called  $\text{Na}^+, \text{K}^+$ -ATPase. Although most fireflies produce these toxins internally, some species acquire them from predation on other fireflies. In this seminar, I will discuss how two ecologically distinct species evolve CTS resistance and argue that epistasis might play a general role in protein adaptation.

### Mini-CV/Short CV (+ Picture of you)

I am currently a postdoctoral fellow in Evolutionary Genetics with Peter Andolfatto at Columbia University (New York). During my PhD supervised by Virginie Courtier-Orgogozo at Institut Jacques Monod (Paris), I studied the glue produced by *Drosophila* larvae to established this system as a new model for investigating the genetic basis of adaptation. Now, I am interested in understanding how factors like epistasis, pleiotropy and dominance can constrain or facilitate protein adaptation.